



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

MAY 3 - 2005

DOT-E 11244
(SEVENTH REVISION)

EXPIRATION DATE: February 28, 2007

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Supercritical Thermal Systems Inc. (STS)
Longmont, Colorado
(Former Grantee: Aerospace Design & Development,
Inc., (ADD))
2. PURPOSE AND LIMITATIONS:
 - a. This exemption authorizes the manufacture, marking, sale, and use of non-DOT specification titanium alloy cylinders for the transportation in commerce of air, refrigerated liquid. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.
 - b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.316(c) in that a non-DOT specification cylinder is not authorized, except as specified herein.
5. BASIS: This exemption is based on STS's application dated February 26, 2005, submitted in accordance with § 107.105 and the public proceeding therein.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):**MAY 3 2005**

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Air, refrigerated liquid, (cryogenic liquid)	2.2	UN1003	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification, insulated, 4 liter capacity cylinder constructed of titanium alloy with an aluminum alloy vacuum shell. Cylinders must be in conformance with ADD's drawing 529-101 on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA) and with the DOT 4L Specification (§§ 178.35 & 178.57) except as follows:

§ 178.35(e) Pressure relief devices and pressure control valves.

Each cylinder must be equipped with two relief valves, one set between 750 to 800 psi and another at 950 psi.

§ 178.35(f) Marking.

(1) Cylinders must be marked "DOT-E 11244" in place of "DOT-4L".

* * *

§ 178.57(a) Type, size, service pressure, and design service temperature.

(1) The maximum service pressure is 1,000 psig.

(2) The design service temperature is -320°F.

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§ 178.57(b) Material.

- (1) The inner containment vessel is constructed of Ti-6Al-4V titanium alloy.
- (2) The outer jacket is constructed of 6061-T6 and/or Type 536 aluminum alloys, or Type 304 stainless steel.

§ 178.57(e) Welding.

- (5) (Added) Pre-weld preparation procedures must be in conformance with ADD MP-0011.

§ 178.57(f) Wall thickness.

- (1) Replace 45,000 psig with 60,000 psig.

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§ 178.57(g) Heat treatment.

Stress relief annealing is authorized.

§ 178.57(o) Authorized materials of construction.

- (1) Inner containment vessel (cylinder). Titanium alloy of uniform quality. Chemical analysis must conform to MIL-T-9047.

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8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this exemption for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this exemption.

b. A person who is not a holder of this exemption, but receives a package covered by this exemption, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this exemption and the HMR.

c. A current copy of this exemption must be maintained at each facility where the package is offered or reoffered for transportation.

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d. Each packaging manufactured under the authority of this exemption must be either (1) marked with the name of the manufacturer and location (city and state) of the facility at which it is manufactured or (2) marked with a registration symbol designated by the Office of Hazardous Materials Exemptions and Approvals for a specific manufacturing facility.

e. A current copy of this exemption must be maintained at each facility where the package is manufactured under this exemption. It must be made available to a DOT representative upon request.

f. Each cylinder must be shipped in a strong outside package in accordance with § 173.301(a)(9).

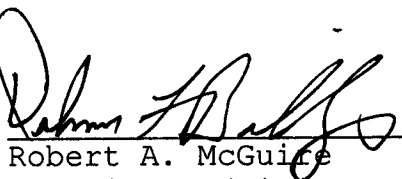
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each motor vehicle used to transport packages covered by this exemption.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by Federal hazardous materials transportation law 49 U.S.C. 5101 et seq.:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
 - o Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8 who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this exemption are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this exemption must notify the Associate Administrator for Hazardous Materials Safety -- OHMEA, in writing, of any incident involving a package, shipment or operation conducted under terms of this exemption.

Issued in Washington, D.C.:



Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

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DATE

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590.

Attention: PHH-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at <http://hazmat.dot.gov/exemptions> Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: CWFreeman